

# **MONTANA WATER PLAN**

## **Management Section**

**FINAL**

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### **Subsection: Water Information System**

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## INTRODUCTION

Information on the quantity, quality, distribution, and allocation of Montana's water resources provides a foundation for sound planning and management decisions. Under Montana law, the Montana Department of Natural Resources and Conservation (DNRC) has a mandate to "gather from any source reliable information relating to Montana's water resources and prepare therefrom a continuing comprehensive inventory of the water resources of the state (Section 85-1-203(1), MCA). Moreover, DNRC is required "in cooperation with other state agencies, institutions, colleges, and universities to establish and maintain a centralized and efficient water resources data management system sufficient to make available and readily accessible, in a usable format, to state agencies and other interested persons, information on the state's water resources, out-of-state water resources that affect the state, existing and potential uses, and existing and potential demands" (Section 85-2-112(4), MCA).

Since 1986, the DNRC has cooperated with the Natural Resource Information System (NRIS), a program of the Montana State Library, in developing a comprehensive water resources data management system. Known as the Montana Water Information System (MWIS), the system is designed to serve as a clearinghouse for all water data sources and users. Developed under the guidance of representatives from several state and federal water management agencies, MWIS does not duplicate the efforts of these organizations, but coordinates information exchanges among state, federal, and private water users and managers.

## BACKGROUND

Given the wide variety of water uses in the state of Montana, it is not surprising that there are several organizations involved in collecting and maintaining many different types of water resource information. DNRC, the Department of State Lands, the Department of Health and Environmental Sciences, and the Department of Fish, Wildlife and Parks all have active programs that involve the collection and use of water quantity or quality data. There is also a vigorous program related to the development of a water rights data system at DNRC. The Statewide Groundwater Information Center located at the Montana Bureau of Mines in Butte serves as a storage and retrieval facility for groundwater data. In Bozeman, the Surface Water Information Center of the Water Resources Center at Montana State University serves as a data repository for water-related research conducted in the university system.

On the federal level, agencies such as the U.S. Geological Survey, the Soil Conservation Service, the U. S. Forest Service, the Environmental Protection Agency, the Bureau of Land Management, and the Bureau of Reclamation are active in the water data management area. Finally, there are a number of private-sector consulting firms and resource development companies whose activities often include the collection of water data.

Each organization typically collects water-related information for its own purposes and, for a variety of reasons, this often results in a duplication of efforts. First, there is often a large amount of data being collected and maintained in a variety of formats, ranging from manual systems to extensive computer data bases. In many cases, the structure or content of the data bases may be incompatible, and thus it may be more efficient for an agency to collect new data rather than convert existing data to a format it can use. Second, because there are no standards for collecting and maintaining water-related information, there is often a question as to the reliability and usability of existing data. Finally, it is often more efficient to collect new data than to spend time trying to find out which organization has the needed information.

The Montana Water Information System was developed to help eliminate the duplication of data management efforts and to facilitate access to needed information. The first step in developing the program was to form a Water Resources Data Management System Advisory Committee. Composed of representatives from several state water data collection and management agencies, the committee provided policy guidance in designing a water data management system under the NRIS program. After meeting several times in 1986, the committee concluded that a new, centralized data system that ties all users into a single information base would be too costly to implement, too difficult to design for all uses, and, given the diverse needs of users, too complex for all users to operate. Instead, the Committee recommended developing a central access point to all the various data sources in the state. In other words, the MWIS program does not serve as a central data storage facility, but rather as a means to identify sources of important data and then coordinate access to those sources. This decentralized data base strategy enables each agency to continue managing its data to meet its own specific needs, and allows for maximum sharing of water data among participating agencies, as well as facilitating centralized data collection for specific issues or basins.

The objectives of the MWIS program are: (1) to determine the water data storage and retrieval needs of Montana data users; (2) to design a water data storage and retrieval system that meets user needs in Montana; (3) to establish

a central point of contact and to coordinate quick and efficient access to existing sources of water information for any particular geographic area of the state; (4) to design and promote a quality control system to ensure the usefulness of the data; and (5) to identify potential and existing duplicative data collection efforts for the purposes of reducing or eliminating such efforts and reducing the resultant costs.

To achieve these objectives, the following activities are currently underway and scheduled for completion by June 1989: (1) developing a data base on water resources information sources in the state; (2) accessing other data bases; (3) designing quality control criteria to ensure the compatibility of data management activities; and (4) surveying other state water information management systems. Once these initial activities have been completed, the MWIS program will be maintained and refined as advances in data management technology occur.

## STATE WATER PLAN POLICY STATEMENT

A comprehensive water information system is needed to improve the management of Montana's water resources by promoting coordination among water managers and users, as well as eliminating duplication of effort in the collection, storage, and retrieval of water-related information.

## ISSUE AND RECOMMENDATION

### Issue

The basic issue regarding water data management is: What type of information management system will best meet the needs of water resource decision makers while responding to the legislative mandate for an efficient water data management program?

### Recommendation

Sustaining the ongoing MWIS program is recommended as the most appropriate approach to managing Montana's water resource data. This program serves the diverse needs of water data users by providing a central access point to decentralized data bases. It eliminates the duplication of effort by enabling each agency to continue managing its own data to meet its specific needs while allowing for the maximum sharing of water data among participating agencies. The existing program also improves the efficiency

and effectiveness of water management activities by identifying and disseminating water-related information in a timely and efficient manner.

MWIS also facilitates the use of such state-of-the art information management technology as a Geographic Information System. Using such a system, information can be assimilated and presented in a variety of formats, from technical reports to maps, as needed in regulatory, management, planning, and research decision making. Given the different needs of various water data users, this type of system is widely recognized as the most efficient and cost-effective approach to developing a comprehensive, integrative water data management system.

## PLAN IMPLEMENTATION

### Legislative Action

The legislature would not need to revise or adopt legislation to authorize the development of a water data management system. However, it is critical that the legislature provide the financial support needed to maintain, refine, and enhance the existing MWIS program.

### Administrative Action

Several administrative actions are necessary to implement the recommended option. These actions are described according to the functions of the MWIS staff and the MWIS Advisory Committee.

#### A. MWIS Staff

1. Complete the current program activities and produce a report that summarizes the findings;
2. Maintain a central access point to data for water information users;
3. Maintain the staff needed to ensure the proper operation of the MWIS program;
4. Receive direction from the MWIS Advisory Committee whose function is to assist the program staff with the development and operation of the data management program;
5. Seek funding for additional microcomputers (with modems) to accommodate increased public use of MWIS by allowing more than one user to access MWIS at a given time, as well as allowing remote access to the system.

6. Cross-train MWIS, NRIS, and State Library staffs to familiarize them with the various data bases being accessed by MWIS, thus enhancing program capabilities to respond to data requests.
7. Provide training to system users to encourage remote and independent use of MWIS.
8. Develop a system for tracking current and anticipated data collection efforts in Montana to enhance information sharing among data users and to discourage duplication of effort.

#### B. MWIS Advisory Committee

1. Expand the advisory committee to include experts in Geographic Information System(s) and natural resources management from state and federal agencies;
2. Provide guidance in identifying computer needs, developing data standards, and identifying funding sources for the acquisition of selected types of data;
3. Prioritize what data are needed to meet the most critical water resource issues facing Montana; and
4. Coordinate the development and utilization of new data management tools, such as a Geographic Information System.

#### Financial Requirements and Funding Strategies

It is estimated that funding in the amount of \$100,000 is needed during the 1990-1991 biennium to maintain and further develop the MWIS program. This funding is being sought through four basic approaches:

1. Negotiate interagency agreements to provide specific data management services for compensation, approximately \$25,000 was acquired during fiscal years 1988 and 1989 and additional agreements are expected in the future.
2. Apply for grants and seek non-state funding. For the 1990-1991 biennium, NRIS has applied for a Renewable Resources Development Grant of \$99,806. Approximately 36 percent of the grant, or \$35,930, would be allocated to MWIS. NRIS has also applied for a Water Development Grant of \$45,510.
3. Request general funds in the event that grants are not available. Although a request for such funds was not made for the 1990-1991 biennium, the director of the Budget Office has indicated he will consider a late request if grant funding is not obtained.
4. Investigate the feasibility of relying on user fees to partially fund the activities of MWIS.

### **Time Schedule**

	<b>Activity</b>	<b>Responsibility</b>	<b>Deadline</b>
A.	Development and Implementation Tasks		
	1. Design MWIS program	MWIS/Advisory Committee	August 1988
	2. Establish central point of contact	MWIS	September 1988
	3. Expand Advisory Committee	MWIS/Advisory Committee	December 1988
	4. Design quality control criteria	MWIS/Advisory Committee	June 1989
	5. Train State Library and NRIS staff	MWIS	March 1990
	6. Provide on-line and remote access to MWIS	MWIS	October 1990
	7. Train users of MWIS	MWIS	June 1991
	8. Develop system for tracking data collection efforts	MWIS	October 1991
B.	Ongoing Tasks		
	1. Determine water data needs and sources	MWIS/Advisory Committee	
	2. Access data bases	MWIS	
	3. Promote quality control criteria	MWIS	
	4. Coordinate the development and utilization of data management tools	MWIS/Advisory Committee	